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MILK DATING REGULATIONS

Their Effect on Milk Distribution and Merchandising Practices

Marketing Research Report No. 415
U. S. DEPARTMENT OF AGRICULTURE
Agricultural Marketing Service
Marketing Economics Research Division

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Washington, D. C. Revised March 1961

Marketing Research Report No. 415 was originally issued in July 1960. It contained a misstatement concerning the statistical significance of the average percentage of wholesale returns for all dating firms. Corrections have been made on pages 3, 9, 10, and 11. Asterisks mark the beginning and end of the corrected material on each of these pages.

SUMMARY

Milk dealers who are required to place the day of the week on the milk containers they distribute to wholesale outlets have more of the milk returned and handle a larger percentage of milk on special deliveries than other dealers. Despite these higher rates, stores selling dated milk close more frequently with no milk on hand for sale and carry over less milk generally than stores selling undated milk. These conclusions were developed in a study of the effects of dating regulations on the costs of milk processing and distribution.

-Milk returned unsold is usually used in manufactured products or dumped. As a result, dealers lose the initial processing and distributing costs, and part or all of the value of the returned milk. Wholesale returns of dated milk, in cities prohibiting the sale of dated milk more than 36 or 48 hours after pasteurization, averaged 5.5 percent of the dated milk sent out on wholesale routes. This was significantly higher, statistically, than the 2.2 percent of returns where dated milk could be sold after more than 48 hours, the 2.1 percent where containers were required to be marked with a code, and the 2.3 percent where no marking was required.-

An alternative to excessive returns is to limit the supply of milk delivered to stores, supplementing the supply as necessary with special deliveries of extra milk. Milk delivered by the dating firms on special deliveries was 3.7 percent of all dated milk sent out on wholesale routes. This percentage was also significantly higher than the 2.0 percent experienced by firms which were required to code-date milk, or the 1.3 percent average of firms where no dating requirement was in effect.

Special deliveries are expensive and are only partly effective in maintaining adequate supplies of milk in stores. Twenty-two percent of the grocers interviewed in cities where milk is stamped with the day of the week had no milk available for sale at closing time on 2 or more days during the month preceding the interview. The runout usually occurred after the dairy had closed for the day or near the store's closing time.

Of the 34 areas enforcing regulations requiring some form of a date on the milk bottle cap or container, most required a plain, recognizable day, such as "Monday." A few required the date of the month, and some specified the use of a coded date, intelligible only to those knowing the key. For most of the Nation's dairies, the use of a coded date is a voluntary method of identifying milk and is a general practice.

Milk marketing practices in areas requiring the use of a coded date were found to be comparable to those in cities where no dating was required. Thus, it appears that the factor responsible for the significant differences in the handling of milk bearing the day of the week was the ability of consumers and grocers to understand the mark on the container.

MILK DATING REGULATIONS--THEIR EFFECT ON MILK DISTRIBUTION AND MERCHANDISING PRACTICES

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INTRODUCTION

The dairy industry and consumers of milk in certain areas of the United States are affected by local regulations which require the day of the week to be shown on the milk bottle cap or container. In some of these cities, milk dealers, producer organizations, and some health authorities have sought to have the regulation abolished, but these efforts have been resisted by consumers and labor groups.

The issue is complex. Freshness and high sanitary quality are important to consumers, and milk producers and distributors cater to this desire in order to sell as much milk as possible. But milk producers and distributors are acutely conscious of the costs incurred. An important problem for legislators, municipal or other, is to balance costs against benefits in such cases. This study was made to provide information only on costs and cost factors involved in milk dating regulations. It is part of a broad program of research designed to reduce the cost of marketing farm products.

Most of the milk dating regulations require that the day of the week be shown on the cap or container, such as "Monday" or "Tuesday." In other instances, the regulations require the date of the month to be shown as "15," "25," and so on. Still other areas require the use of a letter, number, or symbol code to identify the day of the week. In this report, the term "dating" is used for conspicuous, plain marking and "coding" for marking which is not conspicuous or plain in meaning. The term "nondating" applies to milk which does not bear a plain day or date, but includes the voluntary use of a code by some dealers.

The interpretation of the day, date, or code stamped on the container varies according to the region where the regulation is in effect and among the dairy products which must bear a date. Depending on the individual ordinance, the day shown on the milk carton or bottle cap may be the day of production, bottling, or pasteurization; the day or time when the milk may be first distributed, or the final day on which sale or delivery of the milk is permitted. Some ordinances also require the dating of certain milk products, specifying the day of shipment, processing, bottling, manufacture, packaging, or sale (see appendix, table 12).

EXTENT AND NATURE OF DATING REQUIREMENTS

In 1957, 34 jurisdictions in the United States enforced ordinances requiring that either the day of the week, date of the month, or a coded date be placed on all milk containers sold. Those requiring a readily identifiable day of the week or date of the month included 2 States, 1 county, 14 cities, 1 district (composed of 1 township and 3 boroughs), 2 townships, 2 boroughs, 1 town, and 2 villages in various parts of the nation. Two counties and four cities specified the use of a coded date, not readily interpreted by consumers or grocers, while three cities prescribed the use of either the day of the week or a coded date. More than 25 million people, approximately 17 percent of the 1950 population, lived within jurisdictions requiring the use of a recognizable day or date. Only 1 1/2 million, or about 1 percent of the 1950 population, lived within the areas requiring a coded date. In addition, some consumers living in adjacent areas received either dated or coded milk from dealers located within the areas enforcing such regulations. Of the 106 cities in the country numbering more than 100,000 in population, 20 (including 7 of the 10 largest cities) required that a day of the week or date of the month be shown on milk containers. Five of the 106 cities required the use of a coded date and one city required either an intelligible date or a coded date.

Some of the dating areas have placed time limits on milk handling at the different stages between production and sale. Extracts from milk ordinances (appendix, table 12) show that 14 areas limited the time allowed between production and pasteurization of milk. Eighteen limited the time between pasteurization and sale, the limits ranging from 36 to 96 hours. At the expiration of the specified time limit, the milk must be removed from sale. It is generally returned to the dairy plant. In most cases, the milk dealer is responsible for disposing of outdated milk, but in a few areas, storekeepers are held responsible. The returned milk may sometimes be used in certain manufactured products; otherwise, it must be dumped as waste.

The 16 jurisdictions which do not limit the time between pasteurization and sale use an informational and less restrictive type of dating. The milk is labeled with the day or date or a code, but it is then left to the consumer to decide whether to accept the milk.

In nearly all sections of the country where milk dating is not mandatory by regulation, most dairies voluntarily place a coded date on the milk bottle cap or paper carton. This is done for the information of the dairy involved, to aid in product identification. The coded mark is intended to be a guide to the wholesale routemen and plant employees investigating consumer complaints, but it may be interpreted to the local health department.

ISSUES IN THE CONTROVERSY OVER DATING ORDINANCES

As already mentioned, dating requirements have been promoted or defended as assuring consumers a fresher, safer supply of milk. Dating, it is claimed, prevents lengthy storage at the milk plant, on the delivery trucks, in stores, or in the home, thus reducing the hazard of increases in numbers of harmful

bacteria (1, 5, 7). 1/ These benefits are said to be obtained by prohibiting the sale of milk beyond a specified age, or by enabling the user to identify and use first the older milk. Dating is said to deter the overstocking of milk in stores when several dealers compete in serving a single store (7). Displaying the date, it is said, assures the consumer of freshness (8).

In rebuttal of these arguments, it is contended that with modern refrigeration and handling methods, the hazards from milk handled normally are negligible (2, 4, 10, 11, 12). The United States Public Health Service and many State and local health authorities agree that milk dating is not essential to public health (3, 6, 8, 12, 13). Proper pasteurization together with other protective measures virtually eliminates the danger of milkborne disease. The mere presence of a date on the milk container may be deceptive, since neither the calendar age nor the "quality age" may be related to the date on the container (2, 10, 11, 13, 14, 15). 2/

One of the more serious criticisms of dating requirements is that, regardless of the time allowed for the sale of dated milk, marking the container causes consumers to reject the previous day's milk when the current day's milk is available. This criticism may be valid when the mark is conspicuous and easily interpreted by the consumer.

Under such circumstances, grocers' alternatives are to order the minimum quantity they can expect to sell, or to order more nearly adequate supplies with the expectation of returning any unsold milk to the milk dealer. With a policy of buying minimum quantities, the store may frequently be out of milk by the close of the day, making it necessary to have a special delivery from the milk dealer, or to turn away some milk customers empty handed (2, 4, 10) (see also footnote 2). If the mark is inconspicuous, in a code which is not easily deciphered and may even be changed from time to time, it would not give the consumer a basis for discriminating systematically against the older milk.

ECONOMIC CONSEQUENCES OF DATING ORDINANCES

Some of the effects of dating add to the costs of processing and delivering milk and result in partial or total loss of the value of the milk that is returned. Milk distributors have estimated the cost burden at hundreds of thousands of dollars annually for large cities, although it is small on a unit basis, with this cost passed along to consumers in the form of higher prices (2, 9, 10) (see also footnote 2). To the extent that fluid milk sales are not made because retail stores are undersupplied, milk producers may lose the difference between the price of milk for bottling and the price of milk for manufacturing.

It is these economic aspects of the practice of dating milk containers that this report covers. They can be stated as a series of questions: How much more milk is returned on dealers' routes where milk is dated than where

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1/ Underlined numbers in parentheses refer to Literature Cited, page 35.

2/ Also letter from Attorney Charles G. Page to Commissioner of Health, City Health Dept., Baltimore, Md. March 18, 1957. 10 pp.

it is not? What is the frequency with which stores are out of milk where dating is practiced and where it is not practiced? What, if any, difference is there in the amount of special delivery services used in "dating" and "nondating" markets?

Quantities of Milk Returned on Milk Routes

To measure the effect of dating requirements on the rate at which milk is returned on milk routes, a questionnaire was sent to milk dealers in three groups of metropolitan areas. One group of metropolitan areas included jurisdictions which had dating requirements, another had cities or counties with coding requirements, and the third had neither dating nor coding laws. It was expected that returns would be higher where containers were so marked that consumers could discriminate on the basis of age (dating required) than where they could not (coding required or no marking requirement).

All large cities known to have dating or coding requirements were included, and a smaller number not requiring dating or coding. There were 18 metropolitan areas covering the dating jurisdictions, 6 included the coding cities or counties, and 17 metropolitan areas required neither. As nearly as possible, the cities with no requirement were paired with dating and coding areas on the basis of population and location. Questionnaires were sent to the 3 to 5 largest distributors in the metropolitan area of each city.

Metropolitan areas were used, rather than the individual cities, because distributors' routes extend beyond city boundaries into the adjacent suburban areas and plant records consequently are maintained on a combined basis. Also, reports were desired from dealers who dated all of their milk even though the requirement may have applied only to milk delivered on part of their routes, since the crucial factor in rate of milk returns was assumed to be the ability of consumers to recognize the milk which had been bottled last.

Connecticut and New Jersey, which have Statewide dating requirements, were represented by cities whose metropolitan area population exceeded 100,000 in 1950.

Questionnaires relating to their October 1957 business were mailed to 64 dealers in the dating areas, 23 dealers in coding areas, and 63 dealers in nondating areas. Usable schedules were returned from 45 firms which dated their milk containers, 19 which used codes, and 44 from nondating firms.

The 108 firms sent out on their routes, in October 1957, a total of 120 million quarts of milk. The firms which dated their containers accounted for 68 million quarts, coding firms 11 million, and firms neither dating nor coding by requirement, 41 million.

Milk Returned on Retail Routes

Milk returned unsold on retail routes (households) would be expected to reflect only the reserves carried to provide for any extra orders by retail customers. Accordingly, the rates of returns on retail routes should not

differ significantly among dealers dating, coding, or not required to mark the containers. This is, in fact, what was found in the information obtained in the survey (table 1).

Table 1 --Milk distributing firms having milk returned from household routes, by percentage returned, October 1957

Percent returns are of load-out	Dating firms: Number of firms	Dating firms: Percent of firms	Coding firms: Number of firms	Coding firms: Percent of firms	Nondating firms: Number of firms	Nondating firms: Percent of firms
6.00 and over	1	2.9	1	5.6	2	5.3
4.00 - 5.99	1	2.9	0	-	3	7.9
2.00 - 3.99	9	25.7	0	-	8	21.1
1.00 - 1.99	5	14.3	3	16.6	4	10.5
.01 - .99	16	45.7	13	72.2	20	52.6
0	3	8.5	1	5.6	1	2.6
Total	35	100.0	18	100.0	38	100.0

In each category, one or more firms had 6 percent or more milk returned. On the other hand, one or more firms in each category reported that no milk was returned on retail routes.

It appears that rates of returns on retail milk routes are influenced mainly by company policy, and the degree of control exercised over the daily load-out.

Milk Returned on Wholesale Routes

The response of consumers, grocers, and the dairy industry to the dating of milk containers would be shown in the wholesale business done by milk dealers rather than in the retail business, since consumers can choose among the various dated milk containers in the store. Some of the wholesale sales, it is true, are made to eating places, and purchase patterns in such outlets would be unlikely to reflect differences in dating requirements. But stores account for a large percentage of wholesale business.

Data supplied by distributors for this survey indicated that nearly half (21) of the 45 dating firms had returns from wholesale routes in excess of 2 percent of their wholesale load-out, and nearly 20 percent had returns of more than 4 percent (table 2). Of the coding firms and the nondating firms, less than one-third experienced wholesale returns exceeding 2 percent.

High rates of returns may be partly a result of deliberately overloading routes and overstocking stores as a competitive practice. This would account for some dealers having high rates of returns regardless of the type of regulation. Nevertheless, considering the rate of returns as reflecting a decision for or against a policy of overstocking, it is striking that more than 40 percent of the firms in nondating cities had returns of less than 1 percent.

Table 2.--Milk distributing firms having milk returned from wholesale routes, by percentage returned, October 1957

Percent returns are of load-out	Dating firms		Coding firms		Nondating firms	
	Number of firms	Percent of firms	Number of firms	Percent of firms	Number of firms	Percent of firms
6.00 and over	5	11.1	1	5.3	5	11.4
4.00 - 5.99	3	6.7	1	5.3	4	9.1
2.00 - 3.99	13	28.9	4	21.0	3	6.8
1.00 - 1.99	11	24.4	8	42.1	14	31.8
.01 - .99	12	26.7	5	26.3	18	40.9
0	1	2.2	0	-	0	-
Total	45	100.0	19	100.0	44	100.0

*-Effect of dating requirements and time limits

Dating requirements differ as to the length of time the milk is permitted to remain on sale. A short interval might force the return of more milk even though consumers did not consciously discriminate, so the data reported in the survey of milk dealers were examined for such effects. In cities permitting dated milk to be offered for sale only 36 or 48 hours, milk dealers had much higher rates of returns (6.1 percent) than cities with longer or no time limits (table 3). The differences were statistically significant. The averages for the 72-hour and 90-hour limits were not enough higher than the no-limit averages to warrant much confidence that another survey would show the same result.

Table 3.--Relation between time limit for sale of milk and percentage of milk returned from wholesale routes to distributing firms, selected cities, October 1957

Time limit for sale of milk	Number of firms reporting	Returns as percent of quantities sent out 1/
Dating firms where time limit is:		
36 hours	2	9.7
48 hours	6	4.9
Total or average	8	6.1
72 hours	13	2.7
90 hours (or more)	3	3.0
No limit on sale	21	1.8
Total or average	37	2.3
All dating firms	45	3.0
Coding firms	19	1.8
No code or date required	44	2.2

1/ An analysis of covariance revealed a significant relationship between wholesale returns and size of firm, as measured by volume of wholesale loadout. The percentages shown in this table were adjusted to express wholesale returns on the basis of equal, or average, size of firm.-*

Special Delivery Services

If stores are understocked to minimize returns of unsold milk, they might run out of milk frequently. Special delivery service might be given to minimize the loss of sales. The milk dealers surveyed for this study were asked to report their wholesale special delivery business for October 1957. "Special deliveries" were to be considered any trips to wholesale customers other than those made on regularly scheduled deliveries.

Among dating firms about half sent out more than 2 percent of their milk on special deliveries. Only one-third of the coding firms and one-fifth of the nondating firms had 2 percent or more of their wholesale sales on special deliveries (table 4).

Table 4.--Milk distributing firms making special deliveries to wholesale outlets, by percentage of milk so delivered, October 1957

Percent special deliveries are of load-out	Dating firms		Coding firms		Nondating firms	
	Number of firms	Percent of firms	Number of firms	Percent of firms	Number of firms	Percent of firms
6.00 and over	8	17.8	1	5.3	1	2.3
4.00 - 5.99	4	8.9	1	5.3	4	9.1
2.00 - 3.99	10	22.2	4	21.0	4	9.1
1.00 - 1.99	9	20.0	2	10.5	4	9.1
.01 - .99	6	13.3	9	47.4	17	38.6
0	6	13.3	0	-	9	20.4
Data not available	2	4.5	2	10.5	5	11.4
Total	45	100.0	19	100.0	44	100.0

*-Interrelationship of returns and special deliveries

The average percentages of milk handled as returns or on special deliveries by firms in the dating, coding, and nondating categories are shown in revised table 5. This revision was necessary to segregate the 36- and 48-hour dating group from the other categories.

There was no statistically significant difference in percentages of retail or wholesale returns among the three categories--dating, coding, or nondating. However, when the dating category was split into two groups, the rate of wholesale returns for the 8 firms in the 36- and 48-hour group was significantly larger than for the 37 firms in the other dating group. This rate of 5.5 percent was also significantly higher than the 2.1 percent where containers were coded, or the 2.3 percent where no mark was required. The average percentages of milk shown in table 5 do not reflect differences attributable to size of firm.

The 3.7 percent of milk handled on special deliveries by the 43 dating firms was significantly larger than the 2.0 or 1.3 percent delivered by the coding and nondating firms. The interrelated effect of the control of special deliveries versus the control of returns by dating firms is portrayed by the two dating groups. Seven firms in the 36- and 48-hour group had special deliveries of only 1.3 percent, as opposed to the 5.5 percent of wholesale returns, while 36 of the firms in the other dating group delivered 4.1 percent of their milk on special deliveries, in contrast with the 2.2 percent of milk handled as wholesale returns.-*

*-Table 5.--Three categories of milk distributing firms: Average percentage of milk returned from retail and wholesale routes, and percentage of milk distributed to wholesale outlets on special delivery, October 1957

Item	Dating firms						Coding firms		Nondating firms	
	Firms in cities with 36-hour or 48-hour limit on sale		All other dating firms		Total dating firms		All coding firms		All nondating firms	
	No. of firms	Pct. of milk	No. of firms	Pct. of milk	No. of firms	Pct. of milk	No. of firms	Pct. of milk	No. of firms	Pct. of milk
Returned from retail routes 1/	3	2.7	32	1.5	35	1.6	18	1.0	38	1.8
Returned from wholesale routes	8	5.5	37	2.2	45	2.8	19	2.1	44	2.3
Special deliveries to wholesale outlets	7	1.3	36	4.1	43	3.7	17	2.0	39	1.3

1/ Milk returned from retail routes reflects only extra amounts carried to fill possible additional orders from householders.--*

Firms which were not required to date or code their containers succeeded most frequently in keeping both the rate of returns and the rate of special deliveries low. More than half of these firms kept both rates below 2 percent (table 6), whereas only one-third of the coding firms and one-fourth of the dating firms kept both returns and special deliveries below 2 percent.

Table 6.--Milk distributing firms having high or low returns from wholesale routes and special deliveries to wholesale outlets, October 1957

Percentage of milk returned and percentage of milk distributed on special delivery	Dating firms		Coding firms		Nondating firms	
	Number of firms	Percent of firms	Number of firms	Percent of firms	Number of firms	Percent of firms
High returns (over 2%), low specials (under 2%)	9	20.0	5	26.3	9	20.5
Low returns (under 2%), high specials (over 2%)	13	28.9	6	31.6	7	15.9
High returns, high specials (over 2%)	9	20.0	0	-	2	4.5
Low returns, low specials (under 2%)	12	26.7	6	31.6	23	52.3
Data not available	2	4.4	2	10.5	3	6.8
Total	45	100.0	19	100.0	44	100.0

Use of trucks for special deliveries

Some firms send their regular trucks out on special deliveries after the morning deliveries are completed; others maintain one or more trucks to be used exclusively for special deliveries throughout the day. This separate fleet increases distribution costs in maintenance of the additional vehicles and salaries of drivers to operate them.

Almost 75 percent of the dating firms reporting their wholesale special delivery business operated 134 trucks for special deliveries only, averaging 14,693 quarts per truck during the month(table 7). This was a higher average than either the coding firms or the nondating firms experienced. Of firms using their regular fleet to handle special deliveries, the 10 dating firms averaged 13,437 quarts per firm. This also was higher than the averages of the coding and nondating firms.

Table 7.--Milk distributing firms using extra trucks and using regular fleet for special deliveries to wholesale outlets, and quantities delivered, October 1957

Firms	Number of firms	Quantity delivered: Total	Quantity delivered: Average per firm	Extra trucks used	Average quantity per truck
	Firms	Quarts	Quarts	Trucks	Quarts
Firms using extra trucks exclusively for special deliveries:					
Dating firms	28	1,968,846	70,316	134	14,693
Coding firms	7	174,547	24,935	13	13,427
Nondating firms	20	440,124	22,006	51	8,630
Total	55	2,583,517	46,973	198	13,048
Firms using regular fleet for special deliveries:					
Dating firms	1/ 10	134,374	13,437	--	--
Coding firms	10	92,404	9,240	--	--
Nondating firms	2/ 10	98,456	9,846	--	--
Total	30	325,234	10,841	--	--

1/ Five other firms in the survey had no special delivery business in October.
2/ Nine other firms in the survey had no special delivery business in October.

EFFECT OF DATING ON MILK HANDLING IN STORES

The choices which consumers make in grocery stores, or the choices they might possibly make, account for some of the effects on milk dealers which have just been summarized. A number of characteristics of the handling of milk in

stores are important to consumers, storekeepers, and milk dealers, who may be directly affected, and to milk producers who are affected adversely if stores do not satisfy as fully as possible the wants of their customers.

One question is, do all stores have milk continuously available, or do stores in areas where dating is required buy short and run out of milk frequently? To answer this and related questions, several cities were chosen which required dating or coding, and several which required neither. In each of these cities a sample of grocery stores was visited to obtain information about their experience and practices in keeping supplies of milk on hand. In addition to answering questions at the time of the interview, the grocers were asked to keep records of their purchases, sales, daily carryovers, and returns of milk for 1 week.

Frequency of Closing with no Milk on Hand

The principal problem on which information was sought concerned the availability of milk. One measure of this was the frequency with which stores had no milk on hand at the close of the day.

One-fifth of the grocers who were interviewed in dating cities had closed their stores without any milk available for sale on 2 or more days in the month preceding the interview. In coding cities and in cities in which milk containers were not required to be dated or coded less than 10 percent of the stores were out of milk two or more times (table 8). This would indicate that late shoppers for dated milk would find two stores out of every nine without milk near closing time on 2 or more days a month, and two out of every seven stores out of milk at least once a month.

Table 8.--Stores out of milk once, stores out of milk two or more times, and stores never out of milk, May or June 1958

	Stores out of milk once		Stores out of milk two or more times		Total		Stores never out of milk	
Dating cities:	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Baltimore, Md.	4	7.3	23	41.8	27	49.1	28	50.9
Detroit, Mich.	7	11.7	8	13.3	15	25.0	45	75.0
Louisville, Ky.	1	1.7	7	12.1	8	13.8	50	86.2
Total	12	6.9	38	22.0	0	28.9	123	71.1
Coding Areas:								
Flint, Mich.	3	5.0	5	8.3	8	13.3	52	86.7
Wichita, Kans.	3	4.9	2	3.3	5	8.2	56	91.8
Alameda County, Calif.	2	10.0	5	25.0	7	35.0	13	65.0
Total	8	5.7	12	8.5	20	14.2	121	85.8
Nondating cities:								
Buffalo, N. Y.	4	6.9	6	10.3	10	17.2	48	82.8
Indianapolis, Ind.	3	5.1	3	5.1	6	10.2	53	89.8
Total	7	6.0	9	7.7	16	13.7	101	86.3
Grand total	27	6.3	59	13.7	86	20.0	345	80.0

Of the stores surveyed in one of the cities, almost half closed at times with no milk on hand. Only 36 hours was allowed for the sale of milk in that city. Some of the stores received predated milk on the day before its legal delivery. For example, milk was delivered to the store on Thursday evening, but the day of pasteurization shown on the container was Friday. This was not an extensive practice throughout the city, apparently, but reveals the pressures some dealers and grocers experience when attempting to meet their milk customers' demands.

The 50 stores in the dating cities which closed without milk on one or more days of the preceding month represented 28.9 percent of the stores surveyed in those cities. Only 14.2 percent of the stores in the coding areas and 13.7 percent of the stores in the nondating cities closed at times with no milk on hand during that period.

Two main reasons given for not having any milk left in the store before closing were that (1) the runout occurred after the dairy, milk depot, or other source of milk had closed for the day and (2) the runout occurred too near to the store's closing time to warrant securing an additional supply. Five of the grocers said they had tried to get more milk before closing, but were unsuccessful. Of the 86 stores that closed without milk in all the cities, 63 did so because of runouts occurring too late in the day for grocers to procure extra milk.

There were 15 grocers who said that their milk supply had run out on a holiday or on one or more Sundays and that they had closed with no milk in the store on those days because the dairies and milk depots were not open.

Eight other grocers gave miscellaneous reasons for not having milk on shelves when they closed.

Many grocers said they recognized that returns and special deliveries are expensive for the dairies. Some said that they would rather close with no milk available for sale than to bring this expense on their dealers. A few said they wanted to run out of milk every day in order to insure a new supply from the dealer on the following morning. However, for a majority of the grocers, the runout was unplanned and unintentional.

Special Deliveries to Grocers

Special deliveries were requested by, and made to, some grocers when they ran out of milk after the regular delivery had been made. Of the 345 grocers who had had milk on hand at closing time every day of the preceding month, 61 had had to replenish their supply during the day. Most of them (55) asked the dairies to bring more milk on special delivery, and the rest (6) sent their own store personnel to a dairy, milk depot, or another store for more milk.

Average Carryover

As stores in dating cities were more frequently out of milk than stores in other areas, the average quantities they carried over from one day to the next

were likewise smaller. The total amount of milk carried over from one day to the next during one week was 44.3 percent of total sales for the week in cities requiring dating, as compared with 59.2 percent for the other two classes of cities combined (table 9).

Table 9.--Carryover of milk in stores as percent of total sales, in 7 cities, average for 1 week in June or July 1958

City	Number of stores in city	Percent carryover is of sales
Cities requiring dating:		
Baltimore, Md.	22	24.8
Detroit, Mich.	40	55.5
Louisville, Ky.	31	43.7
Total	93	44.3
Cities requiring coding:		
Flint, Mich.	37	55.7
Wichita, Kans.	35	78.0
Total	72	66.6
Cities requiring neither dating nor coding:		
Buffalo, N. Y.	39	46.9
Indianapolis, Ind.	37	57.9
Total	76	52.2
Cities requiring coding combined with those requiring neither dating nor coding	148	59.2

Carryover was not only smaller in the dating cities than in the other cities, but it was less flexible for meeting the variations in demand during the week. The daily carryover in dating cities, as a percentage of the average daily sales for each store, ranged from 38 percent at close of business on Saturday to 40 percent at close of business on Friday (fig. 1). In the non-dating cities the daily carryover was varied to meet the needs of heavy shopping days. The lowest carryover, 53 percent, was at the close of business on Wednesday, Thursday being the day of lowest sales (fig. 2). The highest carryover was 71 percent on Friday, preceding the heavy selling on Saturday.

How factors other than dating affect carryover in stores

Within any one city there were wide differences from store to store in the daily carryover as a percent of daily sales. Part of the variations could be accounted for by differences in the sizes of the stores and the numbers of dealers serving the stores.

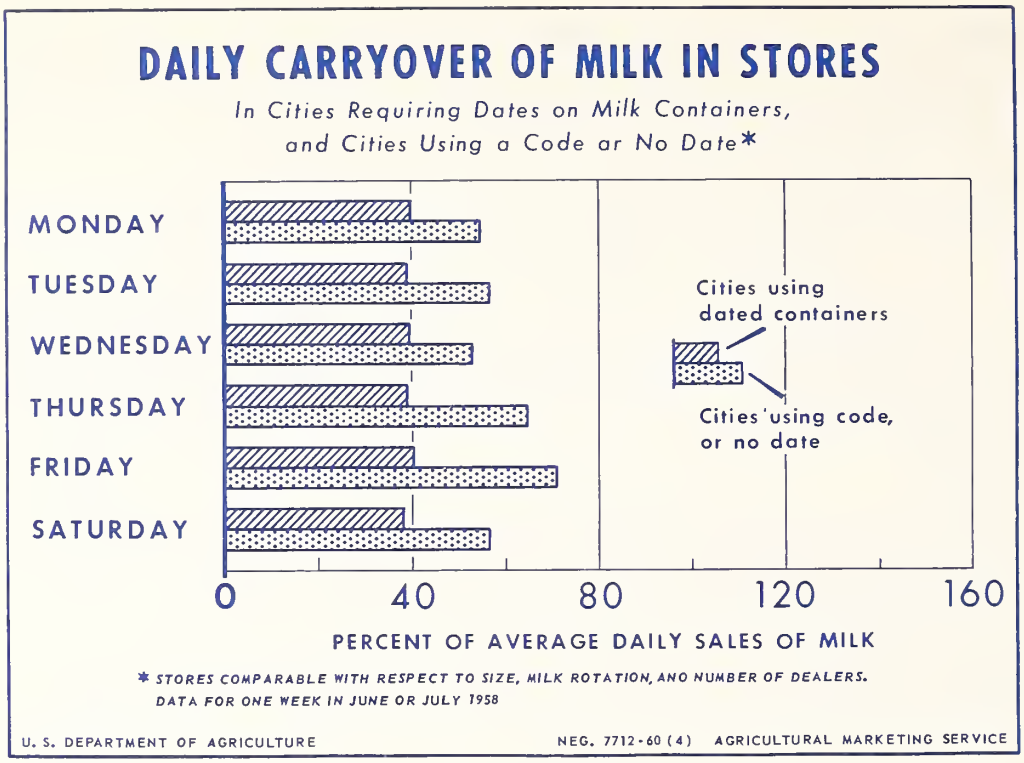

Figure 1

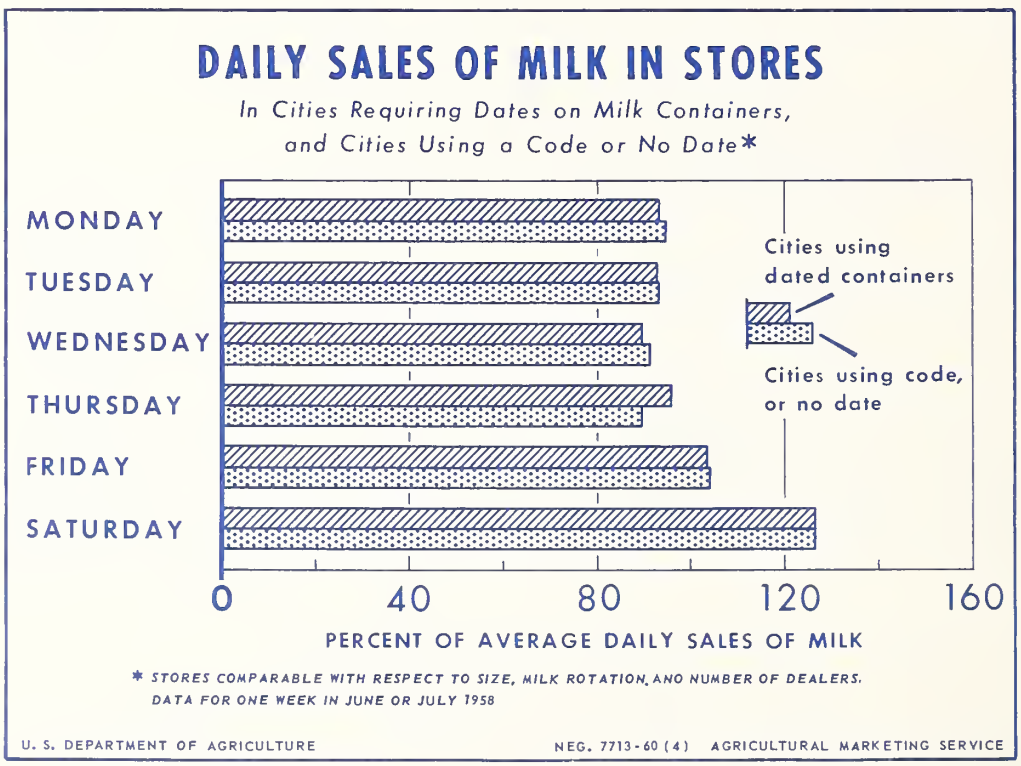

Figure 2

With the data balanced to remove the effect of number of dealers and any effect of dating or not dating milk, the mean carryover in stores selling more than 900 quarts of milk a week was found to be 41.8 percent, while that in stores selling less than 900 quarts was 56.9 percent. This difference in percentages was significant at the 1 percent level. The large stores sold more than ten times as much milk per store as the small stores. The 39 large stores which reported their sales for one week sold 135,107 quarts, while the 213 small stores sold only 66,845. The average quantities sold per week were 3,490 quarts in large stores and 314 quarts in small stores.

The average carryover in stores served by one dealer was 48.7 percent; by two dealers, 60.6 percent; and by three or four dealers, 65.7 percent when the effect of dating and size of store was held constant. The difference in the percentage of carryover between stores served by two dealers and those served by three or four dealers was not statistically significant, although the differences between stores served by one dealer and stores served by two or more dealers was significant.

Rotation Practices

One of the consequences of a dating regulation might be that grocers would be more diligent in rotating the milk on display--moving the older milk forward in the display case and adding the freshest stock at the back. Of the 431 stores surveyed, only 9 said that milk was not regularly rotated in the displays. Most of the 9 were small independent stores where a small supply of milk was kept back of the counter, to be served by the grocer as his customers asked for it. The differences among types of cities were inconsequential. Milk was rotated regularly in 97 percent of the stores in dating cities, 99 percent in the coding cities, and 98 percent in the cities requiring neither date nor code.

Rotation was sometimes done by the driver of the milk truck only, sometimes by the grocer only, and sometimes by both (table 10). This was the only respect in which coding cities differed radically from both dating cities and nondating cities. The difference was most striking in chainstores. In the coding cities, 59 percent of the chainstores had the rotation done by the driver, whereas none of the chainstores in the other types of cities had the rotating done by drivers. Some independent stores had the rotating done by drivers in all three types of cities, but the proportion was much higher in coding cities. It has been pointed out that codes could not be interpreted readily by consumers. The above evidence suggests that storekeepers also are not familiar with the codes. They evidently rely on milk route men to rotate the milk because only the route man is familiar enough with the code to ensure that older milk will be placed where it will be sold first.

Table 10.--Milk rotation practices in 431 chain and independent stores in dating cities, coding areas, and nondating cities, June or July 1958 1/

Location of stores	Chainstores								Independent stores							
	Chain-stores surveyed	Stores in which milk was rotated by--						No rotation	Independent stores surveyed	Stores in which milk was rotated by--						No rotation
		Driver		Grocer		Both driver and grocer				Driver		Grocer		Both driver and grocer		
	No.	No.	Pct.	No.	Pct.	No.	Pct.	No.	No.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Dating cities:																	
Baltimore, Md.	8	0	-	7	87.5	1	12.5	0	47	26	55.3	11	23.4	7	14.9	3	6.4
Detroit, Mich.	5	0	-	5	100.0	0	-	0	55	21	38.2	26	47.3	6	10.9	2	3.6
Louisville, Ky.	3	0		1	33.3	2	66.7	0	55	48	87.3	5	9.1	2	3.6	0	-
All stores, dating	16	0	-	13	81.3	3	18.7	0	157	95	60.5	42	26.8	15	9.5	5	3.2
Coding areas:																	
Flint, Mich.	7	3	42.8	2	28.6	2	28.6	0	53	46	86.8	4	7.5	2	3.8	1	1.9
Wichita, Kans.	11	8	72.7	1	9.1	2	18.2	0	50	47	94.0	0	-	2	4.0	1	2.0
Alameda County, Calif.	4	2	50.0	1	25.0	1	25.0	0	16	12	75.0	3	18.7	1	6.3	0	-
All stores, coding	22	13	59.1	4	18.2	5	22.7	0 0	119	105	88.2	7	5.9	5	4.2	2	1.7
Nondating cities:																	
Buffalo, N. Y.	3	0	-	3	100.0	0	-	0	55	38	69.1	12	21.8	3	5.5	2	3.6
Indianapolis, Ind.	6	0	-	5	83.3	1	16.7	0	53	44	83.0	8	15.1	1	1.9	0	-
All stores, nondating	9	0	-	8	88.9	1	11.1	0	108	82	75.9	20	18.5	4	3.7	2	1.9
Total stores	47	13	27.7	25	53.2	9	19.1	-	384	282	73.4	69	18.0	24	6.3	9	2.3

1/ Milk rotation means the practice of moving older milk to the front of the display case each day and putting the new supply in the back.

Extent of Use of Dating Ordinances

To determine the extent of the dating practice throughout the country, the various State health authorities or, where appropriate, State agricultural officials, were canvassed by mail.

Their replies indicated that only two States, Connecticut and New Jersey, enforced the dating of milk on a statewide basis in 1957.

In 15 other States, 32 municipalities and counties had enacted laws currently requiring that milk and most milk products be labeled with the day of the week, the date of the month, or a coded date.

In another 15 States where dating was not a legal requirement, all or most of the paper containers of milk carried a coded date, used on a purely voluntary basis by the bottling plant. Not every State official indicated the degree of use of a voluntary code, but it is believed to be a widespread practice among the Nation's dairies. The key to the letter, number, or symbol code usually is known only at the dairy employing it and by local health inspectors, and not by consumers or grocers unless it is readily decipherable.

The dating or coding areas, together with the effective dates of their present milk ordinances and their population as of the 1950 census, are listed in table 11. In some areas, all or parts of the ordinances had been revised since their original adoption. The effective dates shown are those of the latest amended or reprinted editions known to be currently in effect.

The 1950 population in these areas totals 27,108,721 or 17.99 percent of the United States population in 1950.

Of these 34 places, two counties (Alameda and Fresno in California) and four cities (Dodgeville, Wis., Flint, Mich., Tampa, Fla., and Wichita, Kans.) require a coded date on the container of milk. Baraboo, Wis., Grand Rapids, Mich., and New Rochelle, N. Y. require the container to show either the day of the week or a coded symbol to indicate the day. The remaining areas require milk dealers to use either the day of the week or date of the month on the milk label.

The meaning of the day shown on the label varies, depending on the locality where it is used and the product to which it is applied. "Monday" on the cap of a bottle of pasteurized milk in Baltimore means that the milk in that particular bottle was pasteurized on Monday, but in Connecticut, "Monday" means that the milk is to be delivered on Monday, and in Birmingham, a "Monday" indicates the last day of legal sale for that particular milk. If the product is bottled raw milk, "Monday" in Baltimore denotes that the milk was produced by the cow on Monday; in Connecticut, "Monday" shows the day of bottling; in Naperville, Ill., "Monday" indicates that Monday is the only day on which that bottle of raw milk can be sold.

Table 11.--Areas having ordinances requiring the dating or coding of containers of milk, 1957

Place	Effective date of most recent ordinance	1950 population
Areas requiring dating:		
Baltimore, Md.	1943	949,708
Berwyn, Ill.	10/18/40	51,280
Boston, Mass.	1/ 1/42	801,444
Chicago, Ill.	1/	3,620,962
Cicero, Ill.	5/15/42	67,544
Cleveland, Ohio	3/19/56	914,808
State of Connecticut	5/ 1/56	2,007,280
Detroit, Mich.	7/19/51	1,849,568
Forest Park, Ill.	1/	14,969
Haverford Twp., Pa.	9/ 1/22	39,641
Jefferson County, Ala.	6/ 1/55	558,928
Louisville, Ky.	7/27/55	369,129
Maywood, Ill.	6/ 3/37	27,473
Milk Control District No. 1, Pa. 2/	11/19/30	69,751
Naperville, Ill.	1/23/49	7,013
State of New Jersey	8/48	4,835,329
Newton, Mass.	10/ 1/41	81,994
New York, N. Y.	10/15/53	7,891,957
Pontiac, Mich.	4/ 9/54	73,681
Radnor Twp., Pa.	2/26/57	14,709
Richmond, Va.	8/27/56	230,310
St. Louis, Mo.	7/11/55	856,796
Sharon Hill, Pa.	5/16/49	5,464
Waukegan, Ill.	4/ 1/48	38,946
Yeadon, Pa.	2/27/58	11,068
Areas requiring coding:		
Alameda County, Calif.	7/ 1/57	740,315
Dodgeville, Wis.	1/	2,532
Flint, Mich.	4/26/54	163,143
Fresno County, Calif.	7/ 1/58	276,515
Tampa, Fla.	1/	124,681
Wichita, Kans.	7/50	168,279
Areas requiring either dating or coding:		
Baraboo, Wis.	4/ 8/54	7,264
Grand Rapids, Mich.	8/ 9/55	176,515
New Rochelle, N. Y.	3/ 2/54	59,725

1/ Copy of ordinance not furnished; effective date unknown.
2/ Lower Merion Township and Boroughs of Aldan, Lansdowne, and Narberth.

The mail survey of local officials, together with the State survey and other sources of information, disclosed that a number of places at one time enforced milk dating regulations which had since been rescinded. These included 2 States, 2 counties, 11 cities, and 3 villages. Five cities which had a milk dating regulation at one time or another, apparently still have their laws in effect but make no effort to enforce them.

Table 12 shows the dating or coding requirements as specified in the milk ordinances of the various areas enforcing milk dating or coding regulations. Where a jurisdiction specified that "milk and milk products" must be either dated or coded, the products identified as milk products in the ordinance have been included in parentheses. It is possible, however, that not all of these products are dated or coded in actual practice.

Procedures Used in the Survey of Retail Stores

The survey of retail stores was limited to a few cities, to keep the cost of the work within bounds. Three cities requiring dating were chosen: Baltimore, Md., Detroit, Mich., and Louisville, Ky. To measure the effect of dating by comparison, four cities and one county which did not require dating were chosen. Three of these places (Flint, Mich., Wichita, Kans., and Alameda County, Calif.) did require milk dealers to mark milk containers with a code. The other two places (Buffalo, N. Y., and Indianapolis, Ind.) were nondating cities, although some dealers used a code marking voluntarily.

The stores to be included in the survey were chosen at random from lists of the stores in each city. The sample consisted of approximately 60 stores in each city, except in Alameda County where 20 stores were interviewed. Chain-stores were sampled separately from independent stores, mainly to assure representation of large stores.

When the survey was made a few grocers were out of business, and some were unwilling to furnish the information wanted. Substitute stores were chosen in these cases. Numbers of stores in each city and the numbers of stores interviewed are shown in table 13, page 34.

Table 12.--Dating or coding requirements and restrictions on milk and various milk products, extracted from ordinances in effect in 1957

Dated or coded products	Interpretation of date or code used	Limitation on time between production and pasteurization	Limitation on time between pasteurization and sale
ALAMEDA COUNTY, CALIF.			
Grade A milk, homogenized, skim or nonfat milk, cream, dairy drinks (mixed milk drinks, mixed skim milk drinks combining fruit juices, chocolate, chocolate syrup or other harmless syrups), half-and-half, cottage cheese, ice cream mix, ice milk mix, milk drink mix or similar mixes	Coded date of processing		Dairy drinks must be packaged within 24 hours after pasteurization and delivered to consumer within 48 hours after pasteurization.
Bulk milk in dispensers	Date or coded date of processing		Disposed of within 72 hours after delivery.
Whipped cream topping	Coded date of processing		Disposed of within 7 days after processing unless sterilized. Single service dispenser, when sterilized, may be held not longer than 6 months, and then must be disposed of within 7 days after opening.
Eggnog sold wholesale	Coded date of bottling or packaging		Sold to consumer within 7 days after bottling or packaging.
BALTIMORE, MD.			
Pasteurized milk, cream (skim milk, buttermilk, or other fermented milk), chocolate milk, table and whipping cream	Day of week on which milk or cream was pasteurized	Must be pasteurized within 24 hours after milking, except that bulk milk shipments are allowed 48 hours after milking	Not to be sold, delivered, or offered for sale after 36 hours from day of pasteurization.
Selected raw milk	Day of production		Delivered to consumer within 48 hours after production.
BARABOO, WIS.			
Milk	Day, or coded day, of bottling		Milk shall not be offered for sale after 96 hours following bottling.
BERWYN, ILL.			
Pasteurized milk, cream, skim milk, homogenized milk, goat milk, vitamin D milk, reconstituted or recombined milk or cream, milk beverages, skim milk beverages, and soft curd milk	Last day on which product may be sold		Must be sold not later than midnight of the day beginning 25 hours after the day of pasteurization and shall not be sold after the day designated on the label.

Continued

Table 12.--Dating or coding requirements and restrictions on milk and various milk products, extracted from ordinances in effect in 1957--Continued

Dated or coded products	Interpretation of date or code used	Limitation on time between production and pasteurization	Limitation on time between pasteurization and sale
BERWYN, ILL. (Cont.)			
Certified milk, cream, and skim milk	Last day on which product may be sold		Must be sold not later than the day beginning 30 hours after the time drawn from the cow, and shall not be sold on any day after the day designated on the label.
Milk and milk products (cream, sour cream, homogenized milk, goat milk, vitamin D milk, buttermilk, skim milk, reconstituted or recombined milk and cream, milk beverages, skim milk beverages, soft curd milk, and any product designated as milk product by Board of Health)		Must be pasteurized within such time of production or receipt by receiving station as may be designated by the Board of Health.	
BOSTON, MASS.			
Pasteurized milk	Day of week on which the milk was pasteurized	Must be drawn from the cows during the 24 hours next preceding the time of delivery of said milk. Must be not more than 72 hours old when pasteurized.	
Any fluid food or drink, a principal ingredient of which is milk, skim milk, or cream (not fluid foods or drinks which are compounded in retail establishments)	Day of the week when contents of final container was pasteurized		
CHICAGO, ILL.			
Raw milk, or any raw milk product received by pasteurization plant	Day of the week received from the receiving station	Must be delivered daily to milk receiving station or pasteurization plant and must be pasteurized within 24 hours of production or receipt.	
Pasteurized milk, cream, and skim milk	Day beginning 25 hours after the day of pasteurization	Same as above	Must be sold not later than midnight of the day beginning 25 hours after the day of pasteurization. Label reads "To Be Sold," followed by specified day. Not to be sold at any time after that designated.

Continued

Table 12.--Dating or coding requirements and restrictions on milk and various milk products, extracted from ordinances in effect in 1957--Continued

Dated or coded products	Interpretation of date or code used	Limitation on time between production and pasteurization	Limitation on time between pasteurization and sale
CHICAGO, ILL. (Cont.)			
Certified milk, cream, and skim milk	Day beginning 30 hours after time drawn from cow	Same as for raw milk above	Must be sold not later than the day beginning 30 hours after the time drawn from the cow, and shall not be sold on any day except the day designated.
CICERO, ILL.			
Pasteurized or certified milk and milk products (cream, sour cream, vitamin D milk, buttermilk, cultured buttermilk, skim milk, milk beverages, skim milk beverages, and other products designated by the Commissioner of Health)	Day of the week on which milk or milk product is to be sold to final customer	All milk received by pasteurization plants must be pasteurized within 24 hours of production	Pasteurized milk, cream, and skim milk labeled "To Be Sold Before Midnight" followed by day beginning 25 hours after pasteurization, and not to be sold after time designated on label. Certified milk, cream, and skim milk labeled with day beginning 30 hours after time drawn from cow and sold only on day designated. Pasteurized buttermilk labeled with day beginning 42 hours after time of pasteurization, and sold only on day designated. Certified buttermilk and cultured buttermilk labeled with day beginning 54 hours after time drawn from cow and sold only on day designated.
Milk and milk products received by pasteurization plants	Day of the week received from receiving station	Same as above	
CLEVELAND, OHIO			
Milk and milk products (except buttermilk, cream, or sterilized milk products)	Last day of the week on which such milk may be legally sold	Milk for bottling or manufacturing must be gathered from farm each morning before 11:00 a.m., and must be pasteurized and packaged or made into manufactured products the same day, or held at 40°F. or less, and processed by 1:00 p.m. the next day	Labeled "Not To Be Sold After" followed by day determined as follows: Milk pasteurized between 8:00 a.m., Monday, and 8:00 a.m., Tuesday, is labeled Friday; milk pasteurized between 8:00 a.m., Tuesday, and 8:00 a.m., Wednesday, is labeled Saturday, etc. (allows 4 days for sale).

Continued

Table 12.--Dating or coding requirements and restrictions on milk and various milk products, extracted from ordinances in effect in 1957--Continued

Dated or coded products	Interpretation of date or code used	Limitation on time between production and pasteurization	Limitation on time between pasteurization and sale
STATE OF CONNECTICUT			
Grade A milk or cream, unpasteurized	Day of bottling	"Fresh milk" is milk which arrives at the dealer's plant within 48 hours after milking.	
Certified milk or cream	Day of bottling		Delivered to the consumer in the shortest possible time after production, with a maximum time limit of 48 hours from the time of the latest milking.
Any type or grade of pasteurized milk, except certified, and including pasteurized cream	Final day of the week when such products are intended for delivery. Delivery day of week shown shall not be later than the second day following the day of pasteurization.		
Milk or cream pasteurized more than one week	"Pasteurized more than one week."		
Bulk milk in storage in dealers' plants	Day of pasteurization, if pasteurized.		
Imported cream	Day of production.		
Imported cream, pasteurized	Day of pasteurization.		
DETROIT, MICH.			
Milk, cream, chocolate milk, homogenized milk, vitamin fortified milk, soft curd milk, half-and-half, pasteurized concentrated milk, and pasteurized concentrated skim milk	Latest days of the week on which such products may be sold	Milk shall be delivered from dairy farms to milk plants and receiving stations within 24 hours after milking	May not be sold later than 96 hours after the days of pasteurization or midnight of the fourth day after the days of pasteurization. Days shown on such labels preceded by "Not To Be Sold After" or "To Be Sold Before".
DODGEVILLE, WIS.			
Whole milk or milk products	Coded date devised by plants selling milk in Dodgeville to make time limit enforceable		Must be delivered to final consumer within 60 hours of the time of pasteurization.

Continued

Table 12.--Dating or coding requirements and restrictions on milk and various milk products, extracted from ordinances in effect in 1957--Continued

Dated or coded products	Interpretation of date or code used	Limitation on time between production and pasteurization	Limitation on time between pasteurization and sale
FLINT, MICH.			
Milk and milk products (cream, whipping cream, skim milk, milk beverages, skim milk beverages, buttermilk, cultured buttermilk, chocolate milk)	Symbol approved by the health officer showing the date or day on which the contents were pasteurized and packaged.		
FOREST PARK, ILL.	No information available except that an ordinance exists		
FRESNO COUNTY, CALIF.			
Market milk and related products	Code, indicating day of processing.		
GRAND RAPIDS, MICH.			
Milk, chocolate milk, and cream	Date of pasteurization, but codes in lieu of dates may be used when approved by the enforcing officer	Milk shall be delivered from dairy farms to milk plants or receiving stations within 24 hours after milking, and pasteurized within 48 hours after it is produced.	
Milk and milk products in containers other than bottles and single service containers	Date of pasteurization or approved code	Same as above.	
HAVERFORD TOWNSHIP, PA.			
Pasteurized milk	Day of the week of pasteurization		Shall be delivered to the consumer within 36 hours after pasteurization.
Pasteurized cream	Day of the week of pasteurization.		
Raw milk or cream	Day of the week when produced.		
JEFFERSON COUNTY, ALA.			
Milk and cream for pasteurization		Shall be delivered daily to milk plant or receiving station unless specific exceptions are made by Board of Health. Milk tanks and similar receptacles used for storage of milk to be pasteurized shall be completely emptied at termination of 24 hours' storage.	

Continued

Table 12.--Dating or coding requirements and restrictions on milk and various milk products, extracted from ordinances in effect in 1957--Continued

Dated or coded products	Interpretation of date or code used	Limitation on time between production and pasteurization	Limitation on time between pasteurization and sale
JEFFERSON COUNTY, ALA. (Cont.)			
Pasteurized milk, cream, and skim milk	Day of the week on which legal sale of such milk, cream, and skim milk terminates		Shall be delivered within 36 hours following pasteurization, excepting it shall not be sold, held for sale, or distributed after midnight of the day of week shown, when deliveries are made to food stores for resale, which shall not exceed a time period of more than 66 hours from the time of pasteurization. Milk and cream labeled "Legal Sale Through Tuesday" may be pasteurized on Saturday and delivered for sale or distribution on the Monday immediately following if storage temperature does not exceed 40°F.
LOUISVILLE, KY.			
Milk or any milk product (cream, sour cream, half-and-half, reconstituted half-and-half, whipped cream, concentrated milk, concentrated milk products, skim milk, nonfat milk, flavored milk, flavored drink, flavored reconstituted milk, flavored reconstituted drink, buttermilk, cultured buttermilk, cultured milk, vitamin D milk, reconstituted or recombined milk, reconstituted cream, reconstituted skim milk, or any other product designated as a milk product by the Health Officer)	The third day following the day of pasteurization		Labeled "Not To Be Sold After," followed by the third day following the day of pasteurization.
MAYWOOD, ILL.			
Pasteurized milk, milk beverages, cream, and skim milk	Day of the week on which the milk is to be sold to the final consumer	Milk and milk products must be delivered to receiving station within a day of production. All milk must be pasteurized within 24 hours of production or receipt by the receiving station.	Labeled "To Be Sold Before Noon," followed by the day beginning 25 hours after the date of pasteurization, and not sold at any time after that designated.

Continued

Table 12.--Dating or coding requirements and restrictions on milk and various milk products, extracted from ordinances in effect in 1957--Continued

Dated or coded products	Interpretation of date or code used	Limitation on time between production and pasteurization	Limitation on time between pasteurization and sale
MAYWOOD, ILL. (Cont.)			
Certified milk and cream and skim milk	Day beginning 30 hours after the time drawn from the cow, and on which the milk is to be sold		Labeled "To Be Sold Before Noon," followed by day beginning 30 hours after time drawn from the cow, and shall not be sold on any day except the day designated.
Pasteurized buttermilk and cultured buttermilk	Day beginning 42 hours after the time of pasteurization, and on which the milk is to be sold		Labeled with the day beginning 42 hours after the time of pasteurization, and shall not be sold on any day except the day designated.
Certified buttermilk and certified cultured buttermilk	Day beginning 54 hours after time drawn from the cow and on which the milk is to be sold		Labeled with the day beginning 54 hours after the time drawn from the cow, and shall not be sold on any day except the day designated.
MILK CONTROL DISTRICT NO. 1, PA.			
Inspected raw milk or cream	Day of the week on which produced.		
Pasteurized milk or cream	Day of the week of pasteurization.		
NAPERVILLE, ILL.			
Milk or milk products (cream, vitamin D milk, homogenized milk, buttermilk, skim milk, reconstituted or recombined milk or cream, milk beverages, and skim milk beverages	Day of the week on which the milk or milk product is to be sold to the final consumer		Labeled "To Be Sold Before Noon," followed by day of week when sold to final consumer, as determined below:
Raw milk, cream, or skim milk	Same		Shall be sold to final consumer not later than 30 hours after the time drawn from the cow, and sold only on day designated.
Pasteurized milk, cream, and skim milk, and milk or skim milk beverages	Same		Shall be sold not later than 48 hours after the date of pasteurization, and shall not be sold at any time after that designated.

Continued

Table 12.--Dating or coding requirements and restrictions on milk and various milk products, extracted from ordinances in effect in 1957--Continued

Dated or coded products	Interpretation of date or code used	Limitation on time between production and pasteurization	Limitation on time between pasteurization and sale
NAPERVILLE, ILL. (Cont.)			
All buttermilk and cultured buttermilk	Same		Shall be sold not later than the day beginning 48 hours after the time of churning, souring or treatment, and shall not be sold on any day except the date designated.
STATE OF NEW JERSEY			
Raw or natural milk or cream	Day on which the milk was produced.		
Pasteurized milk or cream	Day on which the milk was pasteurized, or labeled "Pasteurized during the 24-hour period ending 6 a.m.," followed by day of week at the end of this period	Milk shall be pasteurized within 48 hours from the time of production. Cream shall be pasteurized within 96 hours from the time of production.	(Some local ordinances require that milk must be delivered to consumer within 48 hours after pasteurization). No pasteurized milk or cream shall be sold or offered for sale prior to 12:01 a.m. of the day on the label.
NEW ROCHELLE, N. Y.			
Pasteurized or certified milk or cream	The day of the week when pasteurized, or a numeral indicating the day of pasteurization may be used in lieu of the day		All milk, cream, and milk products shall be delivered on the day or date shown, or on the day following the day or date shown.
NEWTON, MASS.			
Milk or milk products (cream, sour cream, homogenized milk, goat milk, vitamin D milk, buttermilk, cultured buttermilk, milk beverages, skim milk beverages, or any product designated as a milk product by the Health Officer)	Day of the week when the milk was pasteurized	Milk to be pasteurized is natural cow's milk, not more than 72 hours old when pasteurized.	
NEW YORK, N. Y.			
Certified milk, skim milk, and cream in bottles	Day of the week when sale must end		Labeled "May Be Sold Until 6 p.m.," followed by day of the week when sale must end. Must be sold within 42 hours after midnight of the day of production, which day shall be the milkings of any consecutive 24-hour period.

Continued

Table 12.--Dating or coding requirements and restrictions on milk and various milk products, extracted from ordinances in effect in 1957--Continued

Dated or coded products	Interpretation of date or code used	Limitation on time between production and pasteurization	Limitation on time between pasteurization and sale
NEW YORK, N. Y. (Cont.)			
Certified milk, skim milk, and cream in cans	Date, giving day of the month, month and year, when sale must end		Labeled "May Be Sold Until 6 p.m.," followed by day of month, month and year, when the 42-hour period following the day of production ends.
Milk, cream, flavored milk or flavored drink (except sour cream, buttermilk, cultured buttermilk, fermented milk or fermented skim milk, flavored milk or flavored drink when sterilized in the final sealed container, and cans of milk or cream labeled "For Manufacturing Purposes Only" in the possession of a wholesale dealer or food products manufacturer)	Day and time when distribution may begin (date and time are shown on can tags)		May not be distributed prior to day or date indicated (except to a depot or pasteurizing plant of a wholesale dealer) and may not be sold later than 54 hours after 6 a.m. of the day or date shown. Cream may not be sold later than 72 hours after 6 a.m. of the day or date shown.
Milk or cream from outside sources, brought into New York City for pasteurization	Date of shipment.		
Milk or milk products from outside sources, approved for manufacturing purposes	Date of pasteurization or manufacture.		
Pasteurized milk or cream (except sour cream)	Day and time when distribution may begin (date and time are shown on can tags)		Labeled "For Distribution After 6 a.m.," together with day or date when distribution may begin. The time when distribution may begin shall be not more than 36 hours after pasteurization.
Formula milk	Day, and period of the day, in which the milk was prepared		May not be delivered later than the day of its preparation. (Processor must also keep a record of the date of receipt of milk and milk products used in formula milk manufacture, and must file labels, tags, or caps showing day of use of the contents.)
Pasteurized milk or cream, split at a place other than where pasteurized	Date and time when distribution may begin		Date and time when distribution may begin must be that indicated on original tag.

Continued

Table 12.--Dating or coding requirements and restrictions on milk and various milk products, extracted from ordinances in effect in 1957--Continued

Dated or coded products	Interpretation of date or code used	Limitation on time between production and pasteurization	Limitation on time between pasteurization and sale
NEW YORK, N. Y. (Cont.)			
Standardized pasteurized cream, standardized at a place other than where pasteurized	Date and time when distribution may begin		Date and time when distribution may begin shall be that of the earliest date indicated on the original tags before standardization.
PONTIAC, MICH.			
Milk, chocolate milk, cream, homogenized milk, vitamin fortified milk, soft curd milk, half-and-half, pasteurized concentrated milk, and pasteurized concentrated skim milk	Latest days of the week on which such products may be sold	Milk or cream shall be delivered to the milk plant or receiving station within 24 hours after milking	Sold no later than 96 hours after the day of pasteurization or midnight of the fourth day after the day of pasteurization. Labeled "Not To Be Sold After" or "To Be Sold Before."
RADNOR TOWNSHIP, PA.			
Milk or dairy products (cream, homogenized milk, goat milk, vitamin D milk, skim milk, milk beverages, skim milk beverages and any other designated as a milk product by the Board of Health)	Day of the week of pasteurization.		
RICHMOND, VA.			
Any milk or milk product (cream, sour cream, light cream, coffee cream, table cream, whipping cream, light whipping cream, heavy cream, heavy whipping cream, whipped cream, half-and-half, reconstituted half-and-half recombined half-and-half, concentrated milk, concentrated milk product or products, dry milk, skim milk, nonfat milk, fat-free milk, defatted milk, skim milk solids, nonfat dry milk solids, cultured milk, buttermilk, cultured buttermilk, fortified skim milk, reconstituted milk or recombined milk, reconstituted cream, recombined cream, reconstituted skim milk, recombined skim milk, cottage cheese, creamed cottage cheese, flavored milk, flavored drink or flavored dairy drink, flavored reconstituted milk and flavored reconstituted drink or flavored reconstituted dairy drink, homogenized milk, and vitamin D milk)	Day on which pasteurization took place, or such other statement as may be approved by the Health Officer indicating the day on which pasteurization took place		

Continued

Table 12.--Dating or coding requirements and restrictions on milk and various milk products, extracted from ordinances in effect in 1957--Continued

Dated or coded products	Interpretation of date or code used	Limitation on time between production and pasteurization	Limitation on time between pasteurization and sale
ST. LOUIS, MO.			
Cultured buttermilk, reconstituted cultured buttermilk, cultured milk, and reconstituted cultured milk	Day following day of bottling		Must be bottled no later than the day following the day of pasteurization.
Sour cream and dairy dressing	Date of processing.		
Gassed whipped cream, concentrated milk, and concentrated milk products or any other milk product stored for ultimate reconstitution, repasteurization, and bottling in a milk plant	Coded date of processing.		
Milk, cream, light cream, whipping cream, light whipping cream, heavy cream, reconstituted cream, half-and-half, reconstituted half-and-half, imitation half-and-half, imitation cream, concentrated milk, concentrated milk products, skim milk, reconstituted skim milk, nonfat milk, flavored milk, flavored drink, flavored reconstituted milk and flavored reconstituted drink, buttermilk, vitamin D milk, fortified milk and milk products, soft curd milk, homogenized milk	Day after pasteurization (day of the week when the milk or milk products will be first delivered--excepting that when there is a shutdown, the day following the day of shutdown may be shown. Also, on any particular day, dairy may process milk and put that same day's date on it).		
SHARON HILL, PA.			
Milk	Day of pasteurization.		
TAMPA, FLA.			
Milk, buttermilk, or other milk drinks (delivered anywhere except to private residences)	Date milk was processed or pasteurized (coded date may be used)		Unlawful to offer for sale when 6 days old or more from date of processing or pasteurizing.
WAUKEGAN, ILL.			
Pasteurized milk and milk products (cream, sour cream, homogenized milk, goat milk, vitamin D milk, buttermilk, skim milk, reconstituted or recombined milk and cream, milk beverages, skim milk beverage, soft curd milk any any other product designated as a milk product by the Health Officer)	Date of pasteurization, or other reference to such date as may be approved by the Health Officer.		

Continued

Table 12.--Dating or coding requirements and restrictions on milk and various milk products, extracted from ordinances in effect in 1957--Continued

Dated or coded products	Interpretation of date or code used	Limitation on time between production and pasteurization	Limitation on time between pasteurization and sale
WAUKEGAN, ILL. (Cont.)			
Raw milk or raw milk products	Date of receipt for storage at pasteurization plant.		
Certified milk or milk products	Date of production.		
WICHITA, KANS.			
Milk to be consumed as whole milk	Coded date or symbol to make possible the enforcement of the 48-hour limit on sale		Shall be delivered to the consumer within 48 hours after the time of pasteurization.
YEADON, PA.			
Milk	Date on which milk is pasteurized		Unlawful to offer for sale at any time after 48 hours from the pasteurization date.

Table 13.--Numbers of grocery stores in cities surveyed, June-July 1958

Location of stores	Stores in the city 1/			Stores surveyed		
	Total stores	Corporate chains	Independents	Total stores	Corporate chains	Independents
Dating cities:						
Baltimore, Md.	705	87	618	55	8	47
Detroit, Mich.	2,970	208	2,762	60	5	55
Louisville, Ky.	695	39	656	58	3	55
Coding areas:						
Flint, Mich.	202	27	175	60	7	53
Wichita, Kans.	205	38	167	61	11	50
Alameda County, Calif.	2/	2/	2/	20	4	16
Nondating cities:						
Buffalo, N. Y.	1,765	91	1,674	58	3	55
Indianapolis, Ind.	582	59	523	59	6	53
Total	---	---	---	431	47	384

1/ Based on lists compiled by newspaper publishers.
2/ Not available.

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